

CLAIM AMENDMENTS

1. (canceled)

1 2. (currently amended) The chuck actuator defined in
2 claim [[1]] 8 wherein the stem is formed immediately forward of the
3 enlarged-diameter region with a forwardly smoothly tapered region ~~7~~
4 ~~whereby on forward shifting the piston slows smoothly as the~~
5 ~~tapered region enters the ring.~~

3. (canceled)

1 4. (currently amended) The chuck actuator defined in
2 claim [[3]] 8, wherein the port opening into the intermediate
3 compartment is a vent port, the actuator further comprising
4 means for varying the flow cross section of the vent
5 port.

1 5. (original) The chuck actuator defined in claim 4
2 wherein the means for varying includes a screw seated in the
3 housing and having a tapered tip engaged in the vent port.

1 6. (currently amended) The chuck actuator defined in
2 claim [[1]] 8 wherein the housing and ring are both of two parts.

7. (canceled)

1 8. (previously presented) A chuck actuator comprising:
2 a hollow housing having a chamber extending along an axis
3 and having a front end and a rear end and provided with front and
4 rear axial abutments;

5 a ring axially displaceable in the chamber between the
6 abutments, forming with the front end thereof a front compartment,
7 and formed with a bypass passage that is blocked by the rear
8 abutment when the ring bears thereon;

9 a piston in the chamber between the ring and the rear end
10 and forming an intermediate compartment with the ring and a rear
11 compartment with the rear end;

12 an axially extending stem on the piston projecting
13 forward through the ring and through the intermediate and front
14 compartments, adapted to engage and open a chuck and knock a tool
15 from it, and formed with a region of enlarged diameter, the piston
16 being axially shiftable between a rear position with the enlarged-
17 diameter region offset rearward from the ring and with the stem
18 forming with the ring an axially extending passage between the
19 front and intermediate compartments and a front position with the
20 enlarged-diameter portion fitting snugly in the ring and
21 substantially closing the passage; and

22 means including ports opening into the compartments for
23 pressurizing the rear compartment and

24 depressurizing the front and intermediate
25 compartments for shifting the piston

26 forward at a speed slowing when the front
27 position is reached and for
28 pressurizing the front compartment and
29 intermediate compartments and
30 depressurizing the rear compartment for
31 shifting the position rearward into the
32 rear position.

1 9. (original) The chuck actuator defined in claim 8
2 wherein the bypass passage is formed by a plurality of angularly
3 spaced notches cut in the ring.

1 10. (currently amended) The chuck actuator defined in
2 claim [[7]] 8 wherein the abutments are spaced such that the ring
3 can only move through an axial stroke of between 0.1 mm and 1.5 mm.

1 11. (currently amended) The chuck actuator defined in
2 claim [[1]] 8 wherein the ring has a tubularly cylindrical collar
3 coaxially surrounding the stem.